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10/550,410	06/23/2006	James Peter Burnie	87278.2740	2177

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EXAMINER	
ARCHIE, NINA	

ART UNIT	PAPER NUMBER
1645	

NOTIFICATION DATE	DELIVERY MODE
10/09/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@bakerlaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/550,410	BURNIE ET AL.	
	Examiner	Art Unit	
	Nina A. Archie	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,13,18-23,26,28 and 29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *6 and 13* is/are allowed.

6)☒ Claim(s) *1-10, 13, 18-23, 26, and 28-29* is/are rejected.

7)☒ Claim(s) *4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office is responsive to Applicant's amendment and response filed on 3-19-2009. Claims 10, 13, 18-19, and 21-22 have been amended. Claims 1-10, 13, 18-23, 26, and 28-29 are pending and under examination.

Specification

2. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (see pg. 13 lines 25-30, pg. 14 lines 1-2, pg. 23 lines 14-19). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Objections/Rejections Withdrawn

3. In view of the Applicant's amendments and remarks the following objections/rejections are withdrawn.

a) Objection to claim 25 as being dependent on a cancelled claim is withdrawn in light of applicant's cancellation of claim 25.

b) Objection to the claims 10-11, 13-14, 17-23, 26 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter is withdrawn in light of applicant's amendment thereto and in light of applicant's cancellation of claims 11, 14, and 17.

b) Rejection to claims 11, 14, and 17 are rejected under 35 U.S.C. 112, first paragraph is withdrawn in light of applicant's cancellation of claims.

New Grounds of Objections/Rejections

Claim Objections

3. Claim 4 is objected to as being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1 is drawn to a polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO: 2.

The claimed invention is drawn to a product of nature. Products of nature are not patentable because they do not reflect the "hand of man" in the production of the product or manufacturing process. Diamond v. Chakrabarty, 206 USPQ 193 (1980). Additionally, purity of naturally occurring product does not necessarily impart patentability. Ex parte Siddiqui 156 USPQ 426 (1966). However when purity results in new utility, patentability is considered. Merck co. V. Chase Chemical Co. 273 F. Supp 68 (1967). See also American Wood v. Fiber Disinteqratin.q Co., 90 US 566 (1974);American Fruit Growers v. Broqdex Co. 283 US 1 (1931); Funk Brothers Seed Co. V. Kalo Innoculant Co. 33 US 127 (1948). In the instant case recitation of a polypeptide does not indicate the hand of man because a polypeptide is naturally occurring, therefore the claimed antibody composition is deemed a product of nature. Applicant(s) can recite, for example "isolated polypeptide" provided there is support in the disclosure to reflect the hand of man for the product and method using the product.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Written Description

5. Claims 18-20, 22, and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is written description rejection.

Applicant is directed to the Guidelines for the Examination of Patent Applications under the 35 U.S.C. 112, first paragraph "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

To fulfill the written description requirements set forth under 35 USC § 112, first paragraph, the specification must describe at least a substantial number of the members of the claimed genus, or alternatively describe a representative member of the claimed genus, which shares a particularly defining feature common to at least a substantial number of the members of the claimed genus, which would enable the skilled artisan to immediately recognize and distinguish its members from others, so as to reasonably convey to the skilled artisan that applicant has possession the claimed invention.

The instant claims are drawn to methods of detecting *Clostridium difficile* lactate dehydrogenase or antibodies that bind to *Clostridium difficile* lactate dehydrogenase utilizing polypeptides with at least 80% sequence identity to SEQ ID NO:2 or antibodies raised against said polypeptides.

The claims are drawn to a vast genus of variant polypeptides (immunoepitopes) with at least 80% sequence identity to SEQ ID NO:2 and antibodies raised against said polypeptides wherein said polypeptides must bind to antibodies against wild-type *Clostridium difficile* lactate dehydrogenase or wherein said antibodies bind to wild-type *Clostridium difficile* lactate dehydrogenase . Therefore to adequately describe the claimed genus of polypeptides, applicants must adequately describe which portion of antigenic determinants (immunoepitopes) convey the ability to bind to antibodies against wild-type *Clostridium difficile* lactate dehydrogenase and are required to induce antibodies that would bind to wild-type *Clostridium difficile* lactate dehydrogenase . Also Applicant must adequately describe immunoepitopes capable of therapeutic efficacy for treating *Clostridium difficile* infection in a patient.

The specification discloses experiments using fractionated *Clostridium difficile* protein extracts and antisera obtained from patients infected with C. difficile which detected C. difficile protein (SEQ ID NO: 2), which is 36Kda lactate dehydrogenase (LDH) (see pg. 13 lines 1-10 and pgs. 14-24). The specification discloses the LDH (SEQ ID NO: 2) is immunoreactive and is recognized by antibodies within sera (see pgs. 21-24). The specification discloses the polypeptide comprising SEQ ID NO: 2 and SEQ ID NO: 1, a nucleic acid that encodes the polypeptide comprising SEQ ID NO: 2(a polypeptide with defined structure and function). Consequently, SEQ ID NO:1 and SEQ ID NO:2 meet the written description provision of 35 USC 112,first paragraph.

However, said data indicated does not provide a correlation between the structure of the claimed polypeptide and the functions set forth in the instant claims. Furthermore Applicants have not disclosed variants of the above genus, capable of treating a *Clostridium difficile* infection.

Moreover, the specification, does not disclose distinguishing and identifying features of a representative number of members of the genus of variant polypeptides (immunoepitopes) with at least 80% sequence identity to SEQ ID NO:2, to which the claims are drawn, such as a correlation between the structure of immunoepitope for the genus of a variant polypeptides (immunoepitopes) with at least 80% sequence identity to SEQ ID NO:2 and its recited function aforementioned above. Moreover, the specification fails to disclose which amino acid residues are essential to the function of the immunoepitope or which amino acids might be replaced so that the resultant immunoepitope retains the activity of its parent, or by which other amino acids the essential amino acids might be replaced so that the resultant immunoepitope retains the activity of its parent. Therefore, the specification fails to adequately describe at least a substantial number of members of the genus of aforementioned above.

MPEP § 2163.02 states, "[a]n objective standard for determining compliance with the written description requirement is, 'does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed' ". The courts have decided:

The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for

purposes of the "written description" inquiry, *whatever is now claimed*.

See *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Federal Circuit, 1991). Furthermore, the written description provision of 35 USC § 112 is severable from its enablement provision; and adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC 1993) and *Amgen Inc. V. Chugai Pharmaceutical Co. Ltd.,* 18 USPQ2d 1016.

The Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, paragraph 1, ``Written Description'' Requirement (66 FR 1099-1111, January 5, 2001) state, "[p]ossession may be shown in a variety of ways including description of an actual reduction to practice, or by showing the invention was 'ready for patenting' such as by disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention" (*Id.* at 1104). Moreover, because the claims encompass a genus of variant species, an adequate written description of the claimed invention must include sufficient description of at least a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics sufficient to show that Applicant was in possession of the claimed genus. However, factual evidence of an actual reduction to practice has not been disclosed by Applicant in the specification; nor has Applicant shown the invention was "ready for patenting" by disclosure of drawings or structural chemical formulas that show that the invention was complete; nor has Applicant described distinguishing identifying characteristics sufficient to show that Applicant were in possession of the claimed invention at the time the application was filed.

The *Guidelines* further state, "[f]or inventions in an unpredictable art, adequate written description of a genus which embraces widely variant species *cannot* be achieved by disclosing only one species within the genus" (Id. at 1106); accordingly, it follows that an adequate written description of a genus cannot be achieved in the absence of a disclosure of at least one species within the genus. As evidenced by Greenspan et al. (*Nature Biotechnology* 7: 936-937, 1999), defining epitopes is not as easy as it seems. Greenspan et al. recommends defining an epitope by

the structural characterization of the molecular interface between the antigen and the antibody is necessary to define an "epitope" (page 937, column 2). According to Greenspan et al., an epitope will include residues that make contacts with a ligand, here the antibody, but are energetically neutral, or even destabilizing to binding. Furthermore, an epitope will not include any residue not contacted by the antibody, even though substitution of such a residue might profoundly affect binding. Accordingly, it follows that the immunoepitopes that can elicit a protective immune response to a given pathogen can only be identified empirically. Furthermore the specification lacks written description of the instant antibody or antigen fragment thereof that specifically binds to variants. For example, Colman et al. (Research in Immunology 145: 33-36, 1994, p.33 column 2, p. 35 column 1) disclose that a single amino acid changes in an antigen can effectively abolish the interaction with an antibody entirely and that a very conservative amino acid substitution may abolish antibody binding and a non-conservative amino substitution may have little effect in antibody binding. This underlies the importance of the description of the immunoepitopes that are protective and which conservative amino acid substitutions and where and how many changes can the immunoepitopes tolerate and still retain the ability to protect from infection.

Therefore, absent a detailed and particular description of a representative number, or at least a substantial number of the members of the genus of variant polypeptides (immunoepitopes) with at least 80% sequence identity to SEQ ID NO:2, the skilled artisan could not immediately recognize or distinguish members of the claimed genus of variant polypeptides (immunoepitopes) with at least 80% sequence identity to SEQ ID NO:2, with the recited activities.

Absent factual evidence, a percentage sequence similarity of less than 100% is not deemed to reasonably support to one skilled in the art whether the biochemical activity of the claimed subject matter would be the same as that of a similar known biomolecule. It is known for nucleic acids as well as proteins, for example, that even a single nucleotide or amino acid change or mutation can destroy the function of the biomolecule in many instances, albeit not in all cases. The effects of these changes are largely unpredictable as to which ones have a significant effect versus not. Therefore, the citation of sequence similarity results in an unpredictable and therefore

unreliable correspondence between the claimed biomolecule and the indicated similar biomolecule of known function and therefore lacks support regarding utility and/or enablement.

With the exception of an isolated polypeptide comprising SEQ ID NO:2 and an isolated nucleic acid molecule of SEQ ID NO: 1 encoding the polypeptide of SEQ ID NO: 2, the skilled artisan cannot envision all the contemplated variants and binding fragments because the genus is so highly variant and therefore conception cannot be not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method. Therefore, the specification provides insufficient written description to support the genus of variant polypeptides (immunoepitopes) with at least 80% sequence identity to SEQ ID NO:2 encompassed by the claims.

Enablement

6. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 5 is drawn to a host cell comprising the vector of a nucleic vector comprising the isolated nucleic acid encoding the polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO:2.

Applicants broadly claim a host cell containing a polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO: 2 within an expression vector. These claims read on a cell within a host animal given that the term "isolated" is not denoted in describing the host cell. The breadth of the claim reads on the implementation of the host cell in both *in vitro* and *in vivo* assays.

The state of the art at the time of filing was such that one of skill could not predict the phenotype of transgenics. The art of transgenic animals has for many years stated that the unpredictability lies, in part, with the site or sites of transgene integration into the target genome and that "the position effect" as well as unidentified control elements are recognized to cause

aberrant expression of a transgene (Wall, 1996 Theriogenology, Vol. 45, pp. 57-68). The elements of the particular construct used to make transgenic animals are also held to be critical, and they must be designed case by case without general rules to obtain good expression of a transgene; e.g., specific promoters, presence or absence of introns, etc. (Houdebine, 1994, J. Biotech. Vol. 34, pages 269-287, specifically page 281). Furthermore, transgenic animals are regarded to have within their cells, cellular mechanisms that prevent expression of the transgene, such as methylation or deletion from the genome (Kappell, 1992, Current Opinions in Biotechnology, Vol. 3, pp. 548-553).

Well-regulated transgene expression is not frequently achieved because of poor levels or the complete absence of expression or leaky expression in non-target tissues (Cameron, 1997, Molec. Biol. 7, pages 253-265, specifically page 256, col. 1 -2, bridg. parag.). Factors influencing low expression, or the lack thereof, are not affected by copy number and such effects are seen in lines of transgenic mice made with the same construct (Cameron, 1997, Molec. Biol. 7, page 256, lines 3-9). With regard to the importance of promoter selection, Niemann (1998) states that transgenic pigs made with different promoters regulating expression of a growth hormone gene give disparate phenotypes - one deleterious to the pig, the other compatible with pig health (Niemann, 1998, Transg. Res. 7, pages 73-75, specifically page 73, col. 2, parag. 2, line 12 to page 73, col. 1, line 4).

Examples in the literature aptly demonstrate that even closely related species carrying the same transgene construct can exhibit widely varying phenotypes. Mullins (1993, Hypertension, Vol. 22, pp. 630-633) states that not all animals express a transgene sufficiently to provide a model for a disease as the integration of a transgene into different species of animal has been reported to give divergent phenotypes. For example, several animal models of human diseases have relied on transgenic rats when the development of mouse models was not feasible. Mullins (1990, Nature, Vol. 344, 541-544) produced outbred Sprague-Dawley x WKY rats with hypertension caused by expression of a mouse *Ren-2* renin transgene. Hammer (1990, Cell, Vol. 63, 1099-1112) describes spontaneous inflammatory disease in inbred Fischer and Lewis rats expressing human class I major histocompatibility allele HLA-B27 and human b_2-microglobulin transgenes. Both investigations were preceded by the failure to develop human disease-like

symptoms in transgenic mice expressing the same transgenes that successfully caused the desired symptoms in transgenic rats (Mullins, 1989, EMBO J., vol. 8, pages 4065-4072; Taurog, 1988, Jour. Immunol., Vol. 141, pages 4020-4023). Mullins (1996, J. Clin. Invest. Vol. 98, pages S37-S40) disclose that the use of non-murine species for transgenesis will continue to reflect the suitability of a particular species for the specific questions being addressed, bearing in mind that a given construct may react very differently from one species to another. Thus, at the time of filing, the phenotype of a transgenic cell contained within any animal was unpredictable and could not be prepared for any species. Applicants can obviate the instant rejection by amending the claims to recite the term "isolated" before the recitation, "host cell".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 5, 7-9, 18-23 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are drawn to a host cell comprising the vector of a nucleic vector comprising the isolated nucleic acid encoding molecule encoding the polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO:1 (claim5), the vector, wherein the vector is selected from the group consisting of a plasmid, a virus, and a bacteriophage (claim 7), wherein the isolated nucleic acid molecule is inserted into the vector in proper orientation and correct reading frame such that the polypeptide maybe expressed by a cell transformed with the vector (claim 8), wherein isolated nucleic acid molecule is operatively linked to a promoter (see claim 9), method for detecting the presence of Clostridium difficile lactate dehydrogenase in a sample, the method comprising the steps of: i) contacting the sample with the isolated antibody or fragment thereof of claim 10; ii) detecting an antibody-antigen binding reaction; and iii) correlating the results of detection step (ii) with the presence of Clostridium difficile lactate dehydrogenase in the sample (claim 18); a method for detecting the presence of an isolated antibody or an antigen binding fragment that binds specifically to Clostridium difficile lactate

dehydrogenase in a sample, the method comprising the steps of: i) contacting the sample with the composition of claim 1; ii) detecting any antibody-antigen binding reaction; and iii) correlating the results of detection step (ii) with the presence of isolated antibody specific against Clostridium difficile lactate dehydrogenase in the sample (claim 19), wherein the sample is a sample from a patient (claim 26), wherein the sample is a sample from a patient (claim 20); a diagnostic test kit, comprising one or more of: the isolated antibody or fragment, or the composition of a polypeptide comprising an amino acid sequence of at least 80% identical to SEQ ID NO:2, or both; and instructions for use (claim 21); a kit for the treating a Clostridium difficile infection in a patient, comprising: a therapeutically effective quantity of an antibiotic; the isolated antibody or fragment thereof of claim 10; and instructions for use (claim 22) a composition comprising the medicament, wherein the antibiotic is selected from the group of vancomycin, ramoplanin, teicoplanin, and metronazidole (claim 23).

Claims 18 and 22 recites the limitation " fragment thereof ". There is insufficient antecedent basis for this limitation in the claims.

Claims 19 and 21 recites the limitation "composition". There is insufficient antecedent basis for this limitation in the claims.

Claim 23 recites the limitation "medicament". There is insufficient antecedent basis for this limitation in the claim.

Claims 5 and 7-9 recites the limitation "the vector". There is insufficient antecedent basis for this limitation in the claims.

Claim 21 recites the limitation "fragment". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Cerquetti et al 1992 Microbial Pathogenesis Vol. 13 pgs. 271-279 as evidenced by Wright et al 2005 Proteomics Vol. 5 pgs. 2443-2452.

The claims are drawn to a polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO:2 (claim 1), a composition comprising the amino acid sequence of SEQ ID NO:2 (claim 28).

Cerquetti et al teach a 36 kDa immunodominant antigen of Clostridium. The specification teaches SEQ ID NO: 2 encodes a *Clostridium difficile* lactate dehydrogenase with a molecular weight of 36 kD. It is deemed, in absence of evidence to the contrary that the 36 kDa polypeptide of Cerquetti et al. is the same as the polypeptide of SEQ ID NO:2 of the instant invention. Therefore given the polypeptide of the instant invention and 36 kDa immunodominant antigen of Cerquetti et al are deemed to be the same and the sequence of a polypeptide is an inherent feature of a polypeptide both polypeptides would necessarily have the same amino acid sequence. Therefore the polypeptide of Cerquetti et al anticipates a polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO: 2 and a composition comprising said polypeptide.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-3, 10, 21, and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cerquetti et al 1992 Microbial Pathogenesis Vol. 13 pgs. 271-279 and Campbell Chapter 1 pg. 1 Monoclonal antibody Technology pgs. 3-5, 1984 as evidenced by Wright et al 2005 Proteomics Vol. 5 pgs. 2443-2452.

The claims are drawn to a polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO:2 (claim 1), an isolated nucleic acid molecule encoding the polypeptide (claim 2), wherein the isolated nucleic acid comprises the nucleic acid of SEQ ID NO: 1 (claim 3), an isolated antibody or antigen binding fragment thereof binds specifically to the polypeptide, a diagnostic test kit, comprising one or more of: the isolated antibody or fragment, or the composition, or both; and instructions for use (claim 21), a composition comprising the amino acid sequence of SEQ ID NO:2 (claim 28), an isolated nucleic acid molecule, comprising a nucleic acid molecule sequence at least 80% identical to SEQ ID NO:1 (claim 29).

Cerquetti et al teach a 36 kDa immunodominant antigen of Clostridium. The specification teaches SEQ ID NO: 2 encodes a *Clostridium difficile* lactate dehydrogenase with a molecular weight of 36 kD. It is deemed, in absence of evidence to the contrary that the 36 kDa polypeptide of Cerquetti et al. is the same as the polypeptide of SEQ ID NO:2 of the instant invention. Therefore given the polypeptide of the instant invention and 36 kDa immunodominant antigen of Cerquetti et al are deemed to be the same and the sequence of a polypeptide is an inherent feature of a polypeptide both polypeptides would necessarily have the same amino acid sequence. Therefore the polypeptide of Cerquetti et al anticipates a polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO: 2 and a composition comprising said polypeptide.

Cerquetti et al does not teach an isolated nucleic acid molecule encoding the polypeptide, wherein the isolated nucleic acid comprises the nucleic acid sequence of SEQ ID NO: 1, an isolated antibody or antigen-binding fragment thereof that binds specifically to the polypeptide, a diagnostic test kit, comprising one or more of: of the isolated antibody or fragment, or the composition of a polypeptide comprising an amino acid sequence of at least 80% identical to SEQ ID NO:2, or both; and instructions for use, an isolated nucleic acid molecule, comprising a nucleic acid sequence at least 80% identical to SEQ ID NO: 1.

Campbell teach when a protein has been identified one would want to generate antibodies to isolate a gene (see pg. 23 column 2 pg. 24 column 1)

Thus one would be motivated to make isolated antibody or antigen-binding fragment thereof that binds specifically to the polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO: 2, to make an isolated nucleic acid molecule encoding the polypeptide, wherein the isolated nucleic acid comprises the nucleic acid sequence of SEQ ID NO: 1 in a composition or diagnostic kit (as kit is defined as a collection of items) in view of the guidance and teachings of Campbell et al.

Conclusion

10. No claims are allowed.

Claims 6 and 13 are free of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nina A. Archie whose telephone number is 571-272-9938. The examiner can normally be reached on Monday-Friday 8:30-5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner supervisors, Robert Mondesi can be reached on 571-272-0956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nina Archie

Examiner

Art Unit 1645

/Robert A. Zeman/
for Nina Archie, Examiner of Art Unit 1645